

# A COMMUNITY GUIDE TO FLOOD RISK COMMUNICATION

*Promoting Personal Preparedness*



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Partners for Action (P4A) is an applied research network advancing flood resiliency in Canada in the face of a changing climate and extreme weather. Our collaborative approach brings together diverse stakeholders to **create and share knowledge, address information needs, and drive action**. P4A is based out of the Faculty of Environment at the University of Waterloo, with founding support provided by The Co-operators Group Ltd. and Farm Mutual Re.

For more information, please visit: <https://uwaterloo.ca/partners-for-action/>

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## **Flood Communication in Canada**

Flooding is becoming increasingly prevalent in Canada, yet many Canadians are unaware of, and unprepared for, the risks related to this natural hazard. While most Canadians believe that homeowners are responsible for preparing themselves for flooding<sup>1</sup>, few are aware of their personal flood risk and how they can prepare their homes and families for these events. Improved communication is needed to lessen the Canadian vulnerability to flooding and increase overall awareness. Through targeted and strategic communication, directed at individual communities across the country, flood awareness and preparedness actions can increase.

When communicating with communities it is common practice to use a top-down approach. This type of approach assumes that once presented with information, people will inevitably take corresponding actions. Research continually shows that this top-down approach is not an effective way to communicate risk to communities. Instead, a bottom-up strategy is needed, which focuses on community needs and capacity, and employs best practices and effective approaches to flood risk communication. Working with empowered community members is what is needed to create a flood-prepared Canada.

## Using this Guide

The National Oceanic and Atmospheric Administration (NOAA) defines risk communication as “exchanging thoughts, perceptions, and concerns about hazards to identify and motivate appropriate action.”<sup>2</sup> As Canada continues to see a rise in flooding events, more effective communication will be needed.

This Guide provides an overview of best practices for effective flood risk communication, and is designed to facilitate development of flood risk communication that promote community-level preparedness. This Guide is intended for use by emergency managers, risk communicators, and others who are working towards developing flood risk communication messaging and strategies that empower communities to pursue personal preparedness actions to reduce risk.

The structure of the Guide follows the general outline of a communication strategy. This structure will assist with the development of a personalized plan for a targeted community. The next section takes a closer look at the components involved in a communication strategy and how to get started.

# Creating a Communication Strategy

Developing a strategy is key to achieving your flood communication goals. The strategy will outline the steps of the communication process in order to successfully work with and reach your community audience. Use these steps as a guiding framework to create your personalized communication strategy and develop effective flood risk communication with and for your community.

## 1. Purpose and Goals

The first step is to carefully outline the purpose and vision of both your overall communication strategy and your messages. For the purposes of this Guide, the overall goal of the strategy is to increase flood risk awareness and personal preparedness actions. Tailor the purpose and goals of your messages to reflect your specific community audience. These goals will be more specific and may include unique action items for your community to take to increase their flood preparedness. Examples of action items include, but are not limited to, installing a sump pump, caulking basement windows, talking to a local government representative, or attending a local emergency preparedness event.

## 2. Audience

Reaching your target audience is critical for the success of your strategy and effectiveness of your messages. Identifying a community as a whole as your audience is very broad and will be less impactful than carefully identifying which members of your community you are trying to reach. Narrow down your audience by reviewing the goals of your communication strategy. These goals will dictate who it is within your community that you are targeting, such as seniors, youth, students, homeowners, renters, or residents living in high flood-risk zones.

Once you have identified your target audience(s) you need to consider the best ways to work with these community members to gain a better understanding of who they are and how your messages can help them increase awareness and take action. Connecting with community members can be hard, especially when trying to change behaviours.

The Five Lessons for Effective Flood Risk Communication (the 5 L's) is one way to overcome this challenge and secure a strong connection with your community. The 5 L's can be used throughout consultation, communication, and program evaluation to develop messages that empower a community (Figure 1).



**Figure 1. Five lessons for effective flood risk communication**

## Listen

The first lesson, Listen, involves creating a two-way discussion with your audience, which is vital for understanding risk perception (the mechanism behind a person's will to understand and act on their risks). Understanding factors that contribute to individual risk perception, such as views about the function of society, influence of friends and family, level of risk tolerance, worry, past experience, and values, are critical to developing communications that resonate with your audience.<sup>3</sup> It is also important to consider mental shortcuts and barriers to action as they relate to your audience. Mental shortcuts help with processing information, but can often cloud the ability to assess and contextualize risk. Some examples of mental shortcuts, as identified by NOAA<sup>4</sup> include:

## Common Mental Shortcuts

- **Status quo:** Doing nothing because change is hard.
  - ▷ **Example:** “I sometimes think we should elevate our house, but we just haven’t gotten around to doing it.”
- **Optimism:** Assuming bad things happen to others, not you.
  - ▷ **Example:** “I didn’t evacuate because I didn’t think the storm would be that bad. We just don’t get those kinds of floods here.”
- **Anchoring:** Thinking the impact of a previous event is the worst you’ll ever experience.
  - ▷ **Example:** “I lived through Hurricane Katrina and my house didn’t flood. My house will always be safe.”
- **Confirmation:** Cherry-picking information to confirm what you already believe.
  - ▷ **Example:** “What global warming? We just had the most frigid winter I’ve ever been through.”
- **Single action:** Making one change and thinking that action offers enough protection.
  - ▷ **Example:** “We elevated our hot water heater and furnace last year. That’s all we need to do to protect us from a flood.”
- **Solutionism:** Assuming that someone will find a solution, quite often a technological one, which overrides the need to take action now.
  - ▷ **Example:** “They will build a flood wall around the town in a few years. We don’t need to elevate our house now.”
- **Availability:** Allowing the strength of a memory, and the feelings associated with that memory, to affect how you view future events.
  - ▷ **Example:** “Sandy’s storm surge was terrifying. I never want to go through that again. I know next time we will evacuate.”
- **Social amplification:** Paying the most attention to risks commonly discussed.
  - ▷ **Example:** “I see so many stories and videos about tornados that I’m much more afraid of those than I am of flooding from a nor’easter.”

Identifying barriers to action within your audience is also important, particularly when working with vulnerable groups such as the elderly, socially isolated, and those with language and accessibility barriers. Once understood, you can more effectively determine solutions to overcome these obstacles and help your audience prepare.

When speaking with and listening to your audience, remember that everyone views and reacts to risk differently. It is also important not to assume that receiving lots of information about a risk or having had personal experience with a risk will result in more awareness and action. For example, more experience with floods, whether at the community or personal level, does not necessarily result in higher levels of understanding and preparedness. By listening to your community and gaining a deeper understanding of risk perceptions, barriers preventing action, and personal values, you



can begin developing messages that are based on a concrete, localized understandings of your audience.

## **Localize**

The second lesson, Localize, is based on what you have learned about your community audience by listening to them. As you begin to craft your communications you can frame your messages in ways that connect with the values and beliefs of your community audience, which will ensure reliability and effectiveness. For example, you can choose to use visuals to tell stories about your community and their experiences overcoming past floods. As you localize your messages, it is also important to humanize the communications and to avoid fatalism. Describing catastrophic impacts does not resonate with people, but telling relatable stories of how a similar community banded together to prepare for a flooding event does. By demonstrating relevant and tangible examples of how attainable, affordable, and effective flood preparedness can be, you will be more effective in motivating your community audience. It is also important to note that localizing your messages is a key way of building valuable trust and understanding with your community.

## **Link**

As you continue developing messages it is often a good idea to link the local actions of your community to long term and nation-wide goals. This step can assist with motivating your audience to take action and prepare. For example, within your messaging you can communicate the benefits that a change in flood preparedness can have on future generations. This is an approach that continually resonates with communities. Another consideration for your messaging is to communicate the connection between climate change, extreme weather events, and the impact they will have at the community level. When communicating these connections, it is important to use scientific information sparingly, and only to support the message of community preparedness. As previously mentioned, it is very important to avoid the use of fatalism, painting an apocalyptic image of climate change, and focus instead on communicating how similar communities have taken attainable, affordable, and effective actions to prepare for these types of extreme weather events.

## **Lean**

As you work with your community and develop key messages, there is a need to emphasize the importance of personal responsibility for flood preparedness. Floods can be difficult to predict and can cause widespread damages, which means that public

authorities have limited capability of ensuring the immediate protection of each family and individual during a severe flooding event. Therefore, personal preparedness is the most effective flood protection strategy. Communities and residents must take on some of the responsibility for personal flood preparedness.

## **Learn**

The final lesson, Learn, focuses on measuring the effectiveness of your communication strategy and messages. Within your targeted communication strategy you must develop a well-structured process for monitoring and evaluating the effectiveness of your communications with regards to changing behaviour around personal flood risk awareness and preparedness. This will improve future communication with the community and also document effectiveness, demonstrating value and helping to streamline future support and funding. Further, this provides an opportunity to share lessons learned with peers in the emergency management community.

The following list highlights key considerations for implementing the Five Lessons throughout consultation, communication, and program evaluation with your community<sup>5</sup>:

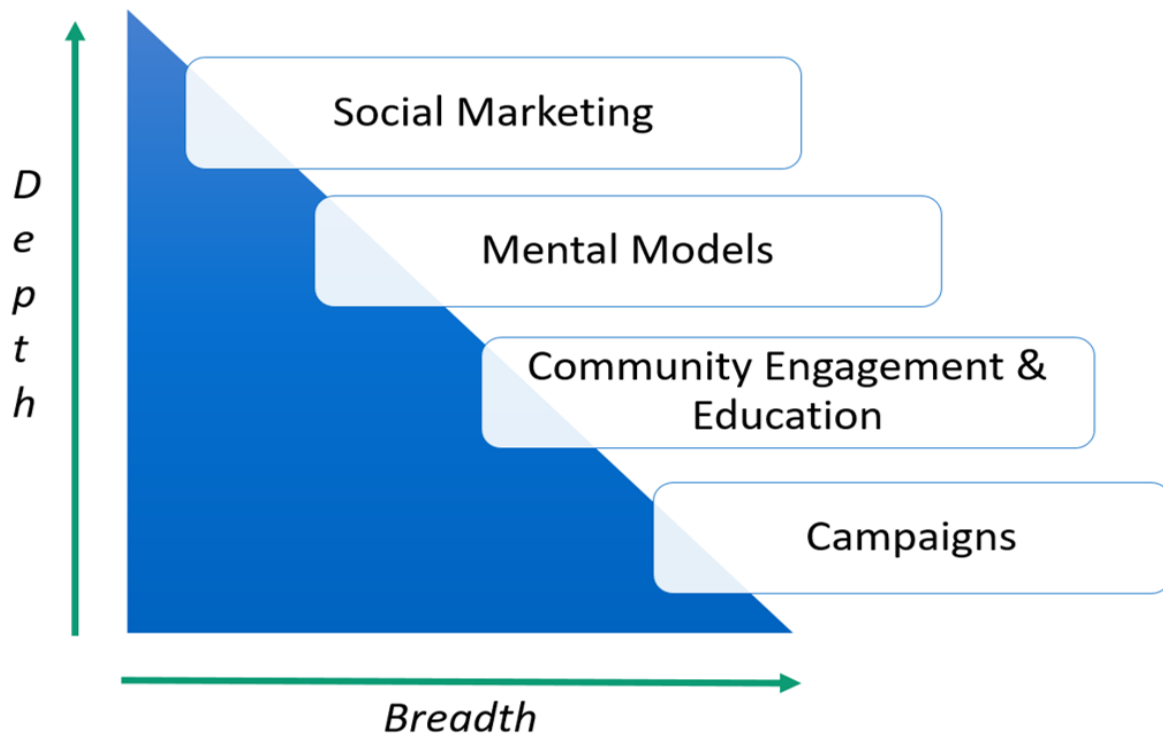
- Have a consistent plan with clear goals that you can adapt throughout the process.
- Communicate in simple, non-technical language, with attractive graphics.
- Draw from varied sources including authorities and familiar people.
- Ensure consistency and repetition of messaging.
- Speak to the interests of your audience, what they value and where they live, work and play.
- Tailor information to specific audiences, considering personal, household, organizational, and geographic characteristics. Also consider these characteristics when deciding how and where to communicate.
- Avoid negative outlooks and ensure messages have a 'call to action' in the stages before, during, and after an event.
- Support people in their search for more information.
- Position additional information in appropriate community locations.
- Use local people to disseminate and champion information.
- Ensure valid understanding of how people process and evaluate hazard information.
- Include stories and visuals to grab and keep attention.
- Focus risk communication on both behaviour change and knowledge advancement.

- Check materials for comprehensibility, credibility, feasibility and capacity to motivate.
- Provide interactive information and pathways for requests and confirmation.
- Strengthen personal involvement and responsibility.

Lastly, remember to test messages and approaches with focus groups or community representatives in advance, and adapt as needed.

### **3. Approaches**

Determining which communication approaches to use will take careful planning. These approaches will be based on the needs and interests of your community. After selecting your audience you may choose to use the 5 L's to gain a better understanding of the group and how to work together to create effective messages. Whether or not you have implemented the 5 L's into your strategy, it is critical that you establish which approaches you are going to use and apply them to your specific community. This Guide suggests using a multi-faceted approach to risk communication (Figure 2), built on the principles of social marketing, mental models, community engagement and education, and campaigns. The following sections of the Guide take a closer look at each of these principles, exploring what each one is as well as their use within your communication strategy.



**Depth** = effort required and personalization of communications  
**Breadth** = extent and reach of communications

**Figure 2. A multi-faceted approach.**

## Social Marketing

### a. What is social marketing?<sup>6</sup>:

Within the context of public emergency preparedness, social marketing can be described as, “working with smaller communities to identify what and how people want to learn, training them, and then maintaining a relationship to ensure preparedness”. These ‘smaller communities’ can be targeted audiences within your larger community. Unlike conventional marketing, social marketing is, “a method of involving people in planning and changes that will improve their lives, not the bottom line of a corporation”. The aim of social marketing is to achieve social change, with community-based social marketing (CBSM) aimed at changing behaviour at the community level.

### b. Why use it?

In many cases, communicators believe that if they deliver risk information to a community, members of that community will automatically respond and take action against the risk. This is often not the case, especially for natural hazard

risks. Instead an approach like social marketing is needed to effectively communicate risk to communities because of its focus on understanding a community, and positioning behaviours to achieve social change.

**c. Does it work?**

Research shows that social marketing is an effective tool, used to motivate people by clearly demonstrating the future benefits of action<sup>7</sup>. For example, Public Safety Canada has successfully used this approach in their emergency preparedness communications across Canada. Further, community-based social marketing is leading the effort on the lasting adoption of sustainable behaviours within communities<sup>8</sup>.

**d. How does it work?<sup>9</sup>**

In practice, social marketing can be used to improve community flood preparedness by following a 10-step process:

1. Describe the background, purpose, and focus of the social marketing plan.
2. Conduct a Situational Analysis to identify internal and external forces that could support or hinder your efforts.
3. Select Target Audiences for the communications – those most likely to take up the messaging, those most critical to the success of the program, and those that most need it.
4. Set Behaviour Objectives and Goals – what behaviour do you want to influence?
5. Identify Target Audience Barriers, Benefits, Competition, and Influential Others through consultation with the community.
6. Develop a Positioning Statement that will frame and guide your communications.
7. Develop a Strategic Marketing Mix (4Ps) focused on Product (the behaviour you are trying to change/what you're trying to communicate), Place (where and how you will promote the behaviour), Promotion (messages, messengers, and communication channels), and Price (incentives and disincentives for adopting the behaviour).
8. Develop a Plan for Monitoring and Evaluation.
9. Establish Budgets and Find Funding Sources.
10. Complete an Implementation Plan.

**Mental Models**

**a. What is the mental models approach?**

Mental models are, “a person’s thought process for how something works (i.e., a person’s understanding of the surrounding world)”<sup>10</sup>. By understanding a community’s mental model on risk perception and preparing for floods, it is easier to understand how to promote personal preparedness within that same community. Mental models are often built on various theories of why people do, and do not, act. These theories show that there are two main drivers that affect whether or not a person will take action to prepare for flooding - threat appraisal and coping appraisal<sup>11</sup>.

Threat appraisal is how worried a person is about the impact of flooding. Threat appraisal will be high if a person thinks there is high probability of a severe flood, with potential for personal impacts, invoking some level of fear. Coping appraisal is how capable a person feels in preparing for an event. Coping appraisal is high if a person thinks there are personal actions they can take which are attainable, affordable and effective. When threat appraisal and coping appraisal are high, a person is more likely to take actions to prepare themselves for flooding. However, there are also barriers that decrease a person’s likelihood to prepare for flooding – beliefs such as reliance on public services for protection, and actual barriers such as disability/infirmity, socio-economic status and access to information.

**b. Why use it?**

The mental models approach can assist with gaining a better understanding of the ways in which your community thinks about floods and the associated risks. By comparing the mental models of your community to those of flood experts, you can identify gaps in perceived knowledge and barriers to action as well as determine the most appropriate communication approaches to bridge these gaps.

**c. Does it work?<sup>12</sup>**

When the mental models approach is used to effectively communicate the need for personal preparedness action in the context of flooding, the potential for risk communication to be, “dismissed, misinterpreted, or allowed to coexist with misconceptions is remarkably smaller”.

**d. How does it work?<sup>13</sup>**

The following section lists the steps for designing a community based mental models approach:

1. Create an Expert Model by interviewing experts on what they believe the community should know, and what they believe the community actually does know about the risk.
2. Create a Community Model by:
  - a. Conducting open-ended interviews with a small number of residents on what they believe and know about the risk; and,
  - b. Conducting a structured survey of a larger portion of the community, based on the results of the interviews.
3. Draft risk communications to address misconceptions identified in #2 and gaps between what risk experts need the community to know, and what they actually do know.
4. Pilot-test the communications with a small number of residents to determine if they are appropriate, understandable, and memorable.
5. Evaluate communications and revise as appropriate.
6. Run communications with entire community.

## **Community Education and Engagement**

### **a. What is community education and engagement?**

Community engagement is an approach to risk communication that “improves people’s sense of efficacy, seems less political, and brings the economic impact and opportunity closer to home”<sup>14</sup>. The following list provides an overview of effective community education and engagement<sup>15</sup>:

- Inform the community.
- Assess the community’s level of knowledge, understanding and concern in relation to flood issues and flood readiness.
- Obtain information community members may have in relation to flood issues, flood readiness, historic flood levels, behaviour and responses.
- Assess community concerns and aspirations in relation to flood problems.
- Provide the community with information on preparedness measures and their inherent advantages and disadvantages.
- Provide a mechanism for the community to have input into selection of appropriate options.

### **b. Why use it?**

To engage a community in the acceptance of, and commitment to, flood risk preparedness, the community must first be involved in creation of messages<sup>16</sup>. Further, using community engagement to promote education is one of the most

effective ways to improve a community’s preparedness and resilience to flooding<sup>17</sup>.

**c. Does it work?<sup>18</sup>**

Engagement is education, not just information, ensuring sustainability, community participation, lifelong learning, continual improvement, and integration. Engagement also allows you to identify vulnerable groups, build knowledge, skills, networks, and leadership, and drive behavioural change.

**d. How does it work?**

The following shows examples of community flood engagement and education<sup>19</sup>:

ENGAGEMENT		EDUCATION	
Processes	Example activities	Processes	Example activities
Informing	Fact sheets, websites, displays, presentations	Awareness-raising	Fact sheets, websites, displays, presentations
Consulting	Focus groups, surveys, public meetings	Developing skills	Training, simulations
Involving	Workshops	Behaviour change	Emergency plans, emergency drills
Collaborating	Committee, citizen advisory panels	Attitudinal change	Opinion pieces, debates, role plays
Empowering	Citizen juries, delegated decisions	Values clarification	Visioning, values surveys

Once understood, these principles can then be used to develop a community-based participatory plan, similar to the template in the following example<sup>20</sup>:

<b>Step 1: Develop guidance and training materials</b>	<p>Guidance and training materials are needed for the following reasons:</p> <ul style="list-style-type: none"> <li>• To evaluate and apply appropriate physical and/or environmental protection measures.</li> <li>• For risk reduction.</li> </ul>
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	<ul style="list-style-type: none"> <li>• To develop disaster response skills.</li> </ul>
<b>Step 2: Learn and practise skills</b>	<p>Participatory learning takes place as skills are learned and practised, for example, in the following areas:</p> <ul style="list-style-type: none"> <li>• Evacuation route planning.</li> <li>• Cyclone and flood shelter construction and maintenance.</li> <li>• Creating rainwater drainage channels and harvesting rainwater.</li> <li>• Fastening furnishing and equipment against earthquake shaking.</li> <li>• Response simulation drills.</li> </ul>
<b>Step 3: Provide training</b>	<p>The need for disaster response skills may be met through training in:</p> <ul style="list-style-type: none"> <li>• Community first aid.</li> <li>• Mass casualty triage.</li> <li>• Response organization.</li> <li>• Light search and rescue.</li> <li>• Fire suppression.</li> <li>• Emergency communications.</li> <li>• Psychosocial support.</li> <li>• Family reunification.</li> </ul>
<b>Step 4: Carry out drills and simulation</b>	<p>At their best, drills and simulations provide much more than simply an occasion for professional responders to practise their skills and monitor their plans. They also offer an opportunity for the public to do reality testing, allowing lessons to be learned in advance of hazard impacts.</p>

## Campaigns

### a. What is a campaign?

Campaigns are an approach to scale up key communications, both to and from a community. After evaluating the success of a communication effort, it is useful to scale up the strategy with a campaign that targets a larger audience and outcome. Past flood campaigns in Canada have focused on motivating Canadians to<sup>21</sup>:

- Listen to reports of extreme weather phenomena occurring in your region and take the recommended precautions.
- Keep an emergency kit that includes 72 hours of supplies, a first-aid kit and a radio in your home in case of an emergency.
- Develop an emergency plan.
- Develop an evacuation plan.
- Purchase flood insurance.

#### **b) Why use it?**

With previous actions taken to build trust, and to create two-way communication with a community, campaigns are a great next step to increase the breadth, or reach, of a communication. By incorporating the principles of social marketing, mental models, and education and engagement, a campaign can unify an already empowered community. Campaigns can put a uniting name/slogan to this movement of empowered community members, which is helpful in obtaining resources and offering a space for dialogue and hands-on activities<sup>22</sup>. Also, campaigns often require clear goals, which provide a way to measure the success of streamlining key communication pieces.

Campaigns can also be seasonal, making them a strong approach to use during flood season to re-group engaged community members<sup>23</sup>. It is essential to remember that campaigns are an approach to unify an already empowered and engaged community; top-down, one-way information campaigns will not typically empower behavioural change<sup>24</sup>.

#### **c) Does it work?**

For campaigns to be sustainable, they must be repeated consistently over a long period of time in a variety of contexts and sectors. When the campaign approach is used correctly, it can be an effective way to promote behavioural change. The following are examples of successful behavioural change campaigns<sup>25</sup>:

- Promote smoking reduction.
- Promote childhood and adult vaccination schedules.
- Promote safe sex practices to prevent HIV/AIDS.
- Reduce illegal drug use.
- Promote use of seat belts in cars.
- Reduce the practice of driving while alcohol impaired.

#### **d) How does it work?<sup>26</sup>**

A campaign can offer a unifying name/slogan to a movement of empowered community members, through a variety of creative means. These can be re-occurring, such as annually during flood season, or can be pulled out when a surprise/newsworthy flood occurs. The following key principles should be considered to engage empowered community members in a campaign:

- Build in opportunities for innovation and creativity.
- Make activities part of membership expectations for volunteers and youth in social groups.
- Use these activities to grow volunteer base.
- Share ownership with government partners to institutionalize efforts, education authorities to universalize efforts, and NGOs to share responsibilities.
- Think ahead and have processes in place to allow adjustments and improvements to maintain and continue momentum.
- Integrate a competitive element (for example, giving awards and recognitions).
- Measure and advertise successes.
- Select capable leadership, share the labour and acknowledge contribution of all parties.

#### **4. Messages and Messengers**

As you gain a clear understanding about your audience, their needs, and the approaches most suited to working with and reaching your community, you can develop your communication messages. Your messages should balance the what (home protection, emergency supplies, emergency plans) with the why (no one is immune to flooding, you need to take care of yourself to be able to help others, and floods could cause you to lose your home, your possessions, time at work, and your health). This balance of personalizing risk, and connecting actions to consequences, will help to drive action. Now that you better understand how your community thinks and feels about risk and their capacity to overcome these challenges, and you can begin to craft communications that affirm their beliefs, acknowledge what they value, and empower them to act to protect themselves and their neighbours.

The lessons and best practices detailed throughout this Guide provide you with guidance on developing messages. This Guide does not include examples of specific messaging, as your messages will need to be individualized to target your community

audience. Your communication messages need to meet the needs of your community to be effective in motivating behaviour change and increasing flood preparedness. Work with your community to determine what messages are appropriate to address their needs.

In addition to crafting your messages you must also determine who it is that will be delivering the messages to your audience. Again, this process will be very specific to your individual community. For risk communication to be effective, “multiple trusted sources must present the information, and it must be repeated often. Information also must be paired with realistic actions and solutions”<sup>27</sup>. Choose a messenger who understands your community well, encourages and motivates your audience, and creates a trusting and relatable dynamic between messenger and receiver.

## **5. Communication Tools**

There are a variety of tools for effectively distributing your messages. It is important to understand the advantages and disadvantages of each tool to identify what will work best for you and your community. This Guide focuses on the following communication tools: imagery and visual stories, face-to-face engagement, social media, virtual resources, mapping and geospatial tools, and printed materials (Figure 3). To successfully reach your audience these tools should be used in combination with each other, and be evaluated throughout the communication process. Evaluating the tools will ensure that they are appropriate and effective depending on the audience and situation and will allow for modifications as needed.



**Figure 3. Tools for effective flood risk communication.**

### **Imagery and Visual Stories**

Imagery provides a localized and humanized story that quickly, yet memorably, connects with people. Imagery evokes lived experiences, which communities can relate to by envisioning stories in the context of their own lives, allowing for higher resonance of communication<sup>28</sup>. When communities are exposed to localized and relevant stories of this kind, “attitudes, values, behaviors and social norms” can shift<sup>29</sup>. This supports the notion that emotions, perhaps more so than rational thought, affect the way a person will respond to a threat.

It is critical that visual story telling does not promote fatalism, anxiety, or fear, as these emotions do not motivate communities to take protective actions. Instead, imagery should evoke “values like empathy, hope, generosity and creativity... inspire agency and courage, tackling the root causes of the problems we face and presenting a positive vision of the future”<sup>30</sup>. Further, the audience should not be overwhelmed with information, but instead provided with accessible, affordable and effective actions they can realistically take to protect themselves and reduce their risk.

## Face-to-Face Engagement

Face-to-face engagement is a powerful tool to promote trust and two-way communication between communities and communicators. Being physically present, such as at community meetings or during focus groups, encourages dialogue between both parties and allows for mutual understanding, support, and education.

You can initiate this dialogue by reaching out to community groups and associations that already have an existing network of community members. Some examples include “neighbourhood associations, workplaces, schools, places of worship, professional and alumni associations, clubs and teams and place-of-origin associations”<sup>31</sup>. This is important as group affiliation and social capital have significant impact on whether a person will engage in face-to-face communication. Group affiliation can build on social norms (i.e., concern for others, maximizing the good of the group), which can exert a stronger influence and result in greater intrinsic reward for individuals when group goals have been achieved<sup>32</sup>. For successful face-to-face engagement, it is essential to understand group dynamics, through<sup>33</sup>:

- Being aware of differences among participants (i.e., education, wealth, occupation, ethnicity, religious motivations, understanding of participation norms), and considering who has authority and who does not.
- Clarifying expectations and the role of the group in the decision(s) to be made (final approval or advisory only?).
- Allowing ample time for discussion, in small groups if possible. Ensure all voices have a platform to be heard, through various feedback mechanisms.
- Providing opportunities for participants to learn from and provide training to others.

## Social Media

Social media is rapidly becoming one of the strongest tools for effective communication – but learning how to control these communications can be difficult. Social media allows for communication and networking outside of traditional organizational structures and networks<sup>34</sup>, through blogs, discussion forums, chat rooms, LinkedIn, Facebook, Snap Chat, YouTube, Instagram, or Twitter<sup>35</sup>. Due to the informal nature and interconnected reach of social media, research shows that this tool promotes trust and cohesiveness among its users<sup>36</sup>. This is especially true for Millennials, who prefer to interact, converse and collaborate, rather than being lectured to<sup>37</sup>. Not only do Millennials play a significant role in information uptake from social media, they also play an important role in spreading that information within their own networks.

Although social media is an effective communication tool it is important to note the challenges that it can present, specifically in the context of risk communication and emergency management. For example, social media can be difficult to control as there is no command over the vast amounts of information entering this digital domain<sup>38</sup>. Research also shows that older generations still use traditional media sources over social media, and do not desire to use social media in the future<sup>39</sup>. In combination with more traditional communication tools, social media can foster flood preparedness behaviour across generations and a variety of audiences.

## **Virtual Resources**

Virtual resources are an affordable and accessible way to connect with a variety of community members. Research shows that for students in particular, e-learning has become more effective than face-to-face engagement. The following sections list some advantages of virtual resources for risk communication:

### **a. Computer/e-learning**

- Flexible access to study materials.
- High calibre instructors share knowledge widely.
- Self-paced learning that accommodates individual requirements.
- Available text, audio and video, to accommodate different learning styles.
- Improved accessibility through different modalities.
- Very low cost per student.

### **b. Telephone/Text Message**

- Text messaging is valuable for delivering early warning messages.
- Encourage audiences to sign up for Alert Ready (<https://www.alertready.ca/>) to receive warnings for local flash floods via text message.

### **c. Audio/Television**

- Audio and television have unparalleled ability to disseminate information to virtually every household.
- There is a broad continuum in audio and video production. At one end are professionally produced, pre-scripted products where the messages are highly controlled. At the other end are participatory videos, which are individually or collectively produced with more spontaneously captured material using inexpensive video cameras and recording devices.

- Professionally produced videos are important for documentation, communication and public relations, while more informal video production can be an important means of tapping into Indigenous and local knowledge, stimulating local creativity, sharing stories, and disseminating peer-to-peer education.
- In the case of participatory video, the production process itself becomes an educational experience, with the primary objective being to stimulate local dialogue and problem solving.

## **Mapping and Geospatial Tools**

Mapping and geospatial tools, when used correctly, may be the most innovative area for future risk communications. Communication is most effective when it links the localized, accessible, affordable, and effective actions that community members can take with the larger goals and values they hold. Mapping and geospatial tools provide this link by demonstrating temporal and geographic changes to a given environment. If communities require an understanding of the breadth and depth of flood impacts on their homes, their families, and themselves, you can use mapping and geospatial tools to model these impacts.

With recent progress towards more intuitive, user-friendly, and online mapping practices, mapping and geospatial tools can be used more effectively<sup>40</sup>. Geospatial tools can identify communities that are vulnerable to flooding but have low perceived risk, and can also show experts where their models may be invalid or incomplete, providing an opportunity for improved expert opinion, transparency, and trust from the community.

Crisis-mapping technology has become a breakthrough geospatial tool in emergency management. This tool, “displays eyewitness reports submitted via e-mail, text message, and social media...plotted on interactive maps, creating a geospatial record of events in real time”<sup>41</sup>. This tool combines geospatial and social media tools to provide a real time and virtual depiction of vulnerable areas to aid response and recovery.<sup>42</sup> New mapping and geospatial technologies, such as augmented reality sandboxes and virtual reality headsets, can provide context and interest by personalizing risk and showing potential effects at the property level – driving change through reducing uncertainty.



## Printed Materials

The goal of print materials in community engagement is to provide your audience with simple awareness and actionable messages, and/or to enhance messages that promote efficacy. Printed materials should include<sup>43</sup>:

- Information that is:
  - factual, concise, and understandable;
  - meets the needs of a range of people/specific audiences (including language and accessibility considerations);
  - addresses necessary action for preparedness throughout a range of issues, including personal safety, evacuation, and animal issues;
  - provides local information relevant to the community; and,
  - provides phone numbers and relevant information for emergency situations.
- Effective presentation of content: large, easy-to-read text, helpful pictures and illustrations to add visual appeal and to enhance the salience of hazards, diagrams and drawings, and appealing graphics.
- Clear and concise messages avoiding jargon, acronyms, or highly technical language, and including contact information for additional assistance.

The following can be used to create engaging risk communication<sup>44</sup>:

- Factsheets, flyers and brochures with key messages, and contact information.
- Information cards – fold-up pocket reminders of important procedures and methods such as evacuation, emergency routes, triage, first aid, cardio-pulmonary resuscitation and water and sanitation.
- Family disaster plan and other key messages – guidance and behaviour change reinforcement.
- Handbook and guideline comprehensive materials, including those for trainers and trainees.
- Workbooks and activity books – interactive materials to reinforce learning.
- Posters – displays that are informative but not too detailed.
- Banners and signs – high-impact, large-scale event advertising.
- Billboards – major, large-scale campaign messages that are compelling and carefully crafted but not distracting.
- Magazines – whether producing an entire title, a special issue, or content for other titles.
- Paper games, card games, board games, models – make your own or professionally printed and boxed.

## 6. Resources

Within your communication strategy include a section that details the resources you will need to plan, create, and deliver your risk communications. These resources should include and account for things like staff members and time, financial budget, internal support, materials (e.g. printing), etc. Determine what resources you already have and what you will need throughout each stage of your risk communication process. Stay organized and keep track of your resources throughout the entire process.

## 7. Summary and Checklist

This Guide provides you with the background information, theories, and steps to get started on a flood communication strategy. As you develop your communication strategy try integrating the best practices and lessons outlined in this Guide. Review the purpose and goals of your strategy frequently to make sure you are staying on track as you work with your community. Gain a thorough understanding of what drives decision-making within your community and remember that developing effective food risk communication takes time and careful planning.

Once you have developed your communication strategy and created your flood risk messaging, a pilot program is a useful next step to evaluate the success and effectiveness of each message. Follow the steps outlined in your communication strategy using a test audience or sample size group from your target audience. The pilot program will ensure the effectiveness of your messaging and will provide you with success stories, lessons learned, and areas for improvement.

In summary, the following ‘wise practices’ should be considered when developing a communication approach for flood preparedness in your community<sup>45</sup>:

1. **Have an Informed Plan** – Know what needs to be achieved and how to achieve it before beginning risk communication efforts.
2. **Speak to Their Interests, Not Yours** – Connect emotionally with your audience and their values and concerns to help establish a relationship and improve your efforts.
3. **Explain the Risk** – Use stories and visuals to make it personal and help audiences understand the impacts and the hazard. However you choose to explain the risk, it has to be free of jargon, clear, and appropriate for your audience.

4. **Offer Options for Reducing Risk** – Work with the community to identify barriers to action, then offer options that address these barriers and are appropriate for the local situation.
5. **Work with Trusted Sources and the Public** – People seek confirmation from multiple trusted sources to verify risk and help them make decisions on what actions to take, if any. These sources can be community leaders, elected officials, emergency managers, and even friends, family, and neighbours.
6. **Test Messages or Products; Evaluate Performance** – Coworkers are not the audience. Test communications on target audience members before reaching out more broadly. Evaluate the results of communications efforts.
7. **Use Multiple Ways to Communicate** – People like to receive information in different ways; understand how the audience likes to receive information on hazards.

A top-down approach will not work. You must empower your community to understand and assess their flood risk, and to provide applicable and effective options for risk reduction.

People want to know:

- Basic information about flooding and preparedness.
- What you, as their leaders, are doing to prepare.
- What they can do to prepare.
- The rationale for what you are asking them to do, and what you are doing.

People want:

- Something to refer to – print materials are key.
- Consistent, up-to-date messages across many platforms.
- Messengers they can relate to, including peers, community leaders, and cultural leaders, in addition to elected officials, emergency managers, and ‘experts’.

The checklist below outlines the key components for developing a flood risk communication strategy and effective communication messages:

The Five Lessons of Effective Flood Risk Communication	A Multi-Faceted Approach to Risk Communication	Communication Tools
<ul style="list-style-type: none"> <li>✓ Listen</li> <li>✓ Localize</li> <li>✓ Link</li> <li>✓ Lean</li> <li>✓ Learn</li> </ul>	<ul style="list-style-type: none"> <li>✓ Social Marketing</li> <li>✓ Mental Models</li> <li>✓ Community Engagement and Education</li> <li>✓ Campaigns</li> </ul>	<ul style="list-style-type: none"> <li>✓ Imagery</li> <li>✓ Face-to-Face</li> <li>✓ Printed Materials</li> <li>✓ Virtual Resources</li> <li>✓ Social Media</li> <li>✓ Mapping</li> </ul>

There are many ways to approach risk communication at the community-level. Using this Guide will ensure effective communication with your audience but more importantly will assist with creating empowered communities, with individuals who understand the importance of flood risk preparedness and feel motivated to take action. It is only by working with empowered communities that we can begin to envision a flood prepared Canada.

## Glossary<sup>46</sup>

**Approach** – The way risk communications are crafted by emergency managers and delivered to communities. Examples would include a national campaign or community engagement.

**Best Practices** – The rules or principles by which emergency managers should develop their communications. Examples would include transparency, relevancy, and accessibility.

**Community-based disaster risk management** – Promotes the involvement of potentially affected communities in disaster risk management at the local level. This includes community assessments of hazards, vulnerabilities and capacities, and their involvement in planning, implementation, monitoring and evaluation of local action for disaster risk reduction.

**Disaster** – A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts that exceed the ability of the affected community or society to cope using its own resources.

**Disaster risk reduction** – The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, reduced vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

**Hazard** – A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and

economic disruption, or environmental damage.

**Mitigation** – The lessening or limitation of the adverse impacts of hazards and related disasters.

**Preparedness** – The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from the impacts of likely, imminent or current hazard events or conditions.

**Prevention** – The outright avoidance of adverse impacts of hazards and related disasters.

**Public awareness** – The extent of common knowledge about disaster risks, the factors that lead to disasters and the actions that can be taken, individually and collectively, to reduce exposure and vulnerability to hazards.

**Resilience** – The ability of a system, community or society exposed to hazards to resist, absorb, adapt to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

**Risk** – The probability of an event and its negative consequences.

**Tool** – The media/mode of communication by which emergency managers deliver/communicate risks to the public. Examples would include posters, e-learning, and social media.

**Vulnerability** – The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

## Endnotes

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